

WHAT IS CLAIMED IS:

1. An auto-metering system for use in a film camera having an automatic film advance system, the auto-metering system comprising:

a sprocket wheel having a support member arranged so that when the automatic film advance system advances film, the sprocket wheel is rotated, with the sprocket wheel having a gear engagement surface;

a reduction gear engaging the gear engagement surface of the sprocket wheel, the reduction gear having a lobe thereon, and adapted to move the lobe between a first position and a second position with said movement between the first position and second position occurring at a different rate than the rate of rotation of the sprocket wheel;

a metering switch located at the second position and changing between a first state when the lobe is not at the second position and a second state when the lobe is at second position; and

a control circuit that controls operation of the film advance system based upon to the state of the metering switch;

wherein sprocket wheel, reduction gear and lobe, are arranged so the lobe is at the second position when the film is advanced by a predetermined amount.

2. The auto-metering system of claim 1, wherein the sprocket wheel, reduction gear, and lobe are arranged so that the lobe reaches the second position more than once as a film is advanced by a predetermined amount, and wherein the control circuit is adapted to control actuation of film advance drive system based upon the number of times that the lobe has been moved to the second position.

3. The auto-metering system of claim 1, wherein the predetermined amount of film advancement is smaller than a full frame, and wherein the control system is adapted to cause the film advance drive system to move the film at a first rate of film advancement before the lobe reaches the second position, at a second, slower, rate of film advance when the lobe reaches

the second position and to cease film advance a predetermined period of time after the lobe reaches the second position.

4. The auto-metering system of claim 1, wherein the film has perforations and the support member has protrusions adapted to engage the film perforations with a number of protrusions on the sprocket wheel being fewer than the number of perforations on the film corresponding to the predetermined amount of film advancement.

5. The auto-metering system of claim 1, wherein the sprocket wheel has a diameter having a circumference that is smaller than the predetermined length of film.

6. The auto-metering system of claim 1, wherein the reduction gear has more than one lobe and wherein the sprocket wheel, reduction gear, and lobe are arranged so that at least one lobe reaches the second position when the film has been advanced by a predetermined amount and wherein the control circuit controls operation of the film advance system based upon detecting the number of times that a lobe has been positioned at the second position.

7. The auto-metering system of claim 1, wherein the reduction gear comprises one of a rotatable gear, a pinion, a belt and a transmission.

8. The auto-metering system of claim 1, wherein the control circuit comprises one of a microcontroller, microprocessor, programmable analog device, or arrangement of discrete electronic components.

9. The auto-metering system of claim 1, wherein the control circuit comprises the metering switch and a jog switch with the metering switch comprising a normally closed switch connected in series between a power supply and the film advance system said normally closed switch being positioned so that when the lobe confronts the metering switch, the lobe opens the metering switch,

and wherein the jog switch is connected in parallel with the normally closed metering switch with the jog switch being adapted to cause a temporary advance of the film sprocket wheel, reduction gear and lobe sufficient to move the lobe from a position confronting the metering switch to a position separated from the metering switch.

10. The auto-metering system of claim 1, wherein the control circuit further comprises a timer adapted to begin measuring a predetermined period of time when power is supplied to film advance system and a switch controlled by the timer that disables the film advance system when the film has not advanced by the predetermined amount in the predetermined period of time.

11. An auto-metering system for use in a camera having a film advance system for advancing film in a winding direction and a film rewind system for advancing film in a rewind direction, the auto-metering system comprising:

a sprocket wheel having a support member arranged in contact with the film so that when the film advance drive system advances the film, the sprocket wheel is rotated, with the sprocket wheel having a gear engagement surface;

a reduction gear engaging the gear engagement surface of the sprocket wheel, the reduction gear having a lobe thereon, with the reduction gear and lobe arranged to move the lobe between a first position and a second position with said movement between the first position and second position occurring at a different rate than the rate of rotation of the sprocket wheel;

a metering switch located at the second position and changing between a first state when the cam is not at the second position and a second state when the cam is at second position; and

a control circuit that activates the film advance drive system after an image is captured and deactivates the film advance drive system in response to a change in state of the metering switch;

wherein the sprocket wheel, reduction gear and lobe, are arranged so the lobe is at the second position when the film is advanced by a predetermined amount.

12. The auto-metering system of claim 11, wherein said control circuit comprises a power supply, and a timer, and wherein said metering switch causes power to be supplied to control switch when the metering switch is in the first state and wherein said control switch enables said film advance system in response to signals from the timer, with the timer being adapted to generate signals causing the control switch to enable the film advance system so long as a predetermined period of time has not elapsed since the metering switch entered the first state.

13. The auto-metering system of claim 11 wherein said timer causes the switch to disable the film advance system after the predetermined period of time has elapsed.

14. The auto-metering system of claim 11, wherein said timer causes the switch to enable the film rewind system after the predetermined period of time.

15. An auto-metering system for a film camera having a film advance system, the auto-metering system comprising:

a sprocket wheel having a support member arranged in contact with the film so that when the film advance system advances the film, the sprocket wheel is rotated, with the sprocket wheel having a gear engagement surface;

a reduction gear engaging the gear engagement surface of the sprocket wheel, the reduction gear having a lobe thereon, with the reduction gear and lobe arranged to move the lobe between a first position and a second position with said movement between the first position and second position occurring at a different rate than the rate of rotation of the sprocket wheel;

a power supply for supplying energy;

a metering switch located at the second position and changeable between a first state when the cam is not at the second position and a second state when the cam is at the second position said metering switch electrically connected in series between the power supply and the film advance system said metering switch providing energy from the power supply to film advance system causing the film advance system to advance the film when the metering switch is at the first position and to interrupt the flow of energy to the film advance system when the metering switch is at the second position; and

a film advance jog circuit for temporarily providing power to the film advance system when the metering switch is in the second position so as to move the metering switch from the second position to the first position;

wherein the sprocket wheel, reduction gear and lobe, are arranged so the lobe is at the second position when the film is advanced by a predetermined amount.

16. An auto-metering system for a film camera having a film advance drive system, the auto-metering system comprising:

a film movement follower having a film contact surface and adapted to in concert with advancement of the film by the film advance drive system;

a metering switch adjustable between a first position associated with a first state and a second position associated with a second state;

a transmission system having a first surface for engaging the film movement follower and a second surface said conversion system adapted to receive energy from the film movement follower and to adjust the second surface to drive the metering switch from the first state to the second state when a predetermined amount of energy is received from the film movement follower; and

a control circuit connected to metering switch for detecting a change in state of the metering switch and for generating a signal disabling film advance system in response to a detected change in state of the metering switch,

wherein the film movement follower moves through more than once cycle of movement as the predetermined amount of energy is received from film movement, and wherein the transmission converts the more than one cycle of movement of the follower into one cycle of movement the second surface.

17. The auto-metering system of claim 16 wherein said control circuit causes the film advance system to operate at a first rate of film movement in one state, another rate of operation when the state of the metering switch changes, and stops operation of the film advance system at a predetermined period of time after the change of state.